WHAT IS CLAIMED IS:

1. A method for identifying a cellular location that corresponds to the site of action of a cellular process, said method comprising:

expressing a key protein in said cellular process with a cell-free transcription/translation system comprising an organelle that is a putative site of action for said cellular process.

2. A method for identifying a mitochondrial compartment that corresponds to the site of biological activity of a mitochondrial protein, said method comprising:

cotransfecting a host cell with (a) a first nucleic acid encoding said mitochondrial protein and a means for immobilizing said mitochondrial protein in a mitochondrial compartment selected from the group consisting of the outer mitochondrial membrane, the inner mitochondrial membrane, the intramembranous space, and the matrix; and (b) a second nucleic acid encoding a reporter system for evaluating the biological activity of said mitochondrial protein whereby a first, second, third and fourth transfected host cell respectively are produced;

expressing said first and second nucleic acids whereby the amount of expression product of said reporter system produced by each transfected host cell as compared to a control transfected host cell expressing said second nucleic acid alone is indicative of the index of biological activity of said mitochondrial protein in each mitochondrial compartment.

3. The method according to Claim 2, wherein said method further comprises:

measuring said biological activity in a cell-free system comprising mitochondria into which the expression products of said first, second, third and fourth transfected host cells have been imported.

4. A method for obtaining a receptor-ligand complex comprising a StAR mitochondrial leader sequence and a receptor for said leader sequence, said method comprising:

combining a functional StAR protein comprising said leader sequence and

up to the full length of said StAR protein joined with a means of immobilizing said protein on the cytoplasmic side of the outer mitochondrial membrane with a source of said receptor; and recovering said receptor-ligand complex.

5. The method according to Claim 4, wherein said receptor is contained in steroidogenic host cells.

6. The method according to Claim 4, wherein said functional StAR protein is expressed in a cell free system.

7. An isolated mitochondrial StAR receptor binding protein comprising as a first subunit a voltage dependent anion channel (VDAC).

8. The isolated mitochondrial StAR receptor binding protein according to Claim 7, wherein said VDAC comprises VDAC1 or VDAC3.

9. The isolated mitochondrial StAR receptor binding protein according to Claim 7, wherein said binding protein comprises as one or more additional subunits one or more protein selected from the group consisting of an adenine nucleotide translocator, an aldehyde dehydrogenase, an ATP carrier protein and a glucose regulated protein 78.

10. The isolated mitochondrial StAR receptor binding protein according to Claim 7, wherein said receptor binding protein is obtainable from a human steroidogenic cell.

11. An isolated complex comprising a StAR leader sequence and a StAR receptor binding protein according to any one of Claims 7-10.

12. A recombinant non-steroidogenic host cell comprising:
a receptor for a StAR mitochondrial leader sequence.

13. A method for enhanced steroid production in a steroidogenic host cell, said method comprising:

transfecting said steroidogenic host cell with a nucleic acid encoding a biologically active StAR protein and a means for immobilizing said StAR protein on the cytoplasmic side of the outer mitochondrial membrane ; and

growing said host cell whereby enhanced steroidogeneis is obtained.

14. The method according to Claim 13, wherein said steroidogenic host cell is selected from the group consisting of Leydig cells, ovarian follicular cells, and endometrial cells.

15. A method for producing pregnenolone in a non-steroidogenic animal host cell, said method comprising:

cotransfecting said host cell with (a) a biologically active StAR protein or a second protein having a functional domain that is essentially identical with that of a StAR protein and has StAR-like steroidogenic activity and a means for immobilizing said StAR protein on the cytoplasmic side of the outer mitochondrial membrane; and (b) a second nucleic acid encoding a cholesterol side chain cleavage enzyme system;

growing said cells whereby pregenolone is produced.

16. The method according to Claim 15, wherein said host cells are COS-1 cells.

17. The method according to Claim 15, wherein said second protein is MLN64.

18. A method for screening for compounds that alter peripheral steroidogenesis, said method comprising:

contacting nonsteroidogenic cells comprising MLN64 that synthesize a steroid hormone or precursor thereof with a test compound, whereby a change in the rate or amount of synthesis of said hormone is indicative of a test compound that alters peripheral steroidgenesis.